

CLAIMS:

The invention is hereby claimed as follows:

- 5 1. A networked computer system for enabling a plurality of users to access a virtual reality environment and interact in said virtual reality environment, said system comprising:

 data representing the virtual reality environment including static virtual reality data and dynamic virtual reality data;

- 10 a server host adapted to receive and store data representing the virtual reality environment and adapted to change, store and transmit said dynamic virtual reality data representing the virtual reality environment;

- a plurality of servers adapted to store and transmit said data representing the virtual reality environment and data representing the location of the server host; and
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- a client host adapted to communicate with at least one of the servers to obtain said data representing the location of the server host to locate the server host, and said client host adapted to receive said dynamic virtual reality data from the server host and to receive said static virtual reality data from one of the
- 20 servers to access said virtual reality environment.

2. The system of Claim 1, wherein at least one of the servers includes a data server for storing and transmitting said static virtual reality data.

3. The system of Claim 1, wherein the servers include a plurality of session servers for storing and transmitting informational data associated with the server host and the client host to locate the client host and server host.

5 4. The system of Claim 3, wherein the session servers include a database for storing updated informational data.

10 5. The system of Claim 1, wherein the servers include a plurality of name servers for storing and transmitting data associated with a plurality of session servers and a plurality of data servers.

15 6. The system of Claim 5, wherein the data includes a session server name, a session server IP address and a session server status and routing information.

7. The system of Claim 1, which includes means for assigning access restrictions to the server host.

20 8. The system of Claim 1, which includes means for registering the client host and server host with at least one of the servers.

9. The system of Claim 1, wherein the virtual reality environment is run in an active mode between the client host and the server host.

10. The system of Claim 9, wherein the client host and the server host establish a continuous network communication with one another to facilitate interaction in the virtual reality environment between a user of the server host and a user of the client host.

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11. The system of Claim 9, wherein the server host and the client host transmit dynamic virtual reality data to each other to update the virtual reality environment.

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12. The system of Claim 11, wherein the server host simultaneously functions as a server host and a client host relative to a plurality of different virtual reality environments.

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13. The system of Claim 1, wherein the virtual reality environment is run in a passive mode between the client host and the server host.

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14. The system of Claim 13, wherein the server host transmits dynamic data representing a copy of the virtual reality environment at a particular time to the client host.

15. The system of Claim 14, wherein a network communication between the client host and the server host is discontinued after the data representing a copy of the virtual reality environment at a particular time is transmitted to the client host.

16. A method for users to interact within a virtual reality environment,
said method comprising the steps of:

providing a plurality of hosts and servers interconnected with the hosts
wherein the servers store and transmit data including informational data and
5 static virtual reality data to the hosts;

locating the hosts by utilizing the informational data from the servers; and
establishing a network communication between the hosts to access the
virtual reality environment wherein at least one of the hosts acts as a server host
for transmitting dynamic virtual reality data to at least one other host.

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17. The method of Claim 16, which includes the step of performing a
plurality of computer applications within the virtual reality environment.

18. The method of Claim 16, which includes the step of creating and
15 customizing a personal virtual reality environment.

19. The method of Claim 18, wherein the personal virtual reality
environment is a home or business environment.

20. The method of Claim 16, which includes the step of establishing
the network communication between the users within the virtual reality
environment.

21. The method of Claim 16, which includes the step of performing dynamic host roaming.

22. The method of Claim 16, which includes the step of performing
5 host name aliasing.

23. The method of Claim 16, wherein the locating step includes locating the hosts in a follow user mode.

10 24. The method of Claim 16, wherein the locating step includes locating the hosts in a visit user home mode.

25. The method of Claim 16, wherein the network communication step includes establishing the network communication by multi-cast messaging.
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26. The method of Claim 16, wherein the network communication step includes establishing the network communication by uni-cast messaging.

27. The method of Claim 16, wherein the hosts access the virtual
20 reality environment in an active mode.

28. The method of Claim 16, wherein the hosts access the virtual reality environment in a passive mode.

29. The method of Claim 16, which includes the step of registering the hosts and users.

30. A method of registering a host and a user within a virtual reality
5 networked computer system, said method comprising the steps of:
establishing a network communication between a host and a server;
issuing a registration request from the host to the server;
transmitting the registration request to at least one other server;
determining the server nearest to the registering host and user;
10 assigning unique identifiers to the host and the user;
transmitting informational data from the host and user to the nearest
located server; and
updating at least one database associated with the nearest located server
with the informational data.

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31. The method of Claim 30, which includes the steps of transmitting
the registration request from a plurality of higher level name servers to a plurality
of lower level name servers and session servers until the session server nearest
to the registering host is located.

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32. A method of locating a user and a host within a virtual reality networked computer system, said method comprising the steps of:

issuing a location request from a host to a low level server;

transmitting the location request from the low level server to at least one
5 upper level server;

transmitting the location request from said upper level server to a plurality of other lower level servers until another host having a host name associated with the location request is located;

establishing a network communication between said hosts;

10 determining a location of the users; and

establishing a network communication with the users via the hosts associated with users.

33. The method of Claim 32, which includes the step of locating the
15 hosts in a visit user mode.

34. The method of Claim 32, wherein the step of determining the location of the users includes determining the location in a follow user mode.

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35. A method of operating a virtual reality environment in an active mode within a networked computer system, said method comprising the steps of:

establishing a network communication between a client host and server host via a plurality of servers each associated with the client hosts and the server hosts;

activating the virtual reality environment associated with the server host;

transmitting data representing the virtual reality environment from the server host to the client host;

interacting within the virtual reality environment; and

continuing the network communication between the client host and the server host.

36. The method of Claim 35, wherein the client host and the server host simultaneously function as both a client host and a server host relative to a plurality of different virtual reality environments.

37. The method of Claim 35, wherein the activating and transmitting steps further include activating and transmitting data representing the virtual reality environment in a stealth mode.

38. The method of Claim 35, which includes the step of activating the transmitted data representing the virtual reality environment in a current active mode.

39. A method of operating a virtual reality environment within a networked computer system in a passive mode, said method comprising the steps of:

- establishing a network communication between a client host and server host via a plurality of servers associated with the client host and the server host;
- transmitting data representing a copy of the virtual reality environment from the server host to the client host;
- discontinuing the network communication between the client host and the server host; and
- activating the transmitted data representing a copy of the virtual reality environment at the client host.

40. The method of Claim 39, which includes creating a user group by establishing a network communication between the client host and an additional other client hosts that each include data representing a copy of the virtual reality environment.

41. A method of temporarily relocating a host within a virtual reality networked computer system, said method comprising the steps of:

establishing a network communication between the host and home session server associated with the host;

5 calculating a logical distance between the host and the home session server;

calculating a logical distance between the host and a plurality of session servers in geographic proximity to the host;

10 redirecting the host to the session server other than the home session server if the logical distance between the host and the home session server is greater than the logical distance of at least one of the session servers in network proximity to the host; and

updating the home session server with informational data associated with redirecting the hosts.

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42. A method of permanently relocating a host within a virtual reality networked computer system, said method comprising the steps of:

establishing a network communication between a host and home session server associated with the host;

20 moving the host to the session server other than home session server during a network expansion; and

updating the home session server with informational data associated with moving the host.

43. A method of teleporting users between a plurality of virtual reality environments, said method comprising the steps of:

creating a user group associated with a departure virtual reality environment containing at least one user;

5 establishing a continuous network communication between each of the hosts associated with the user group;

identifying a destination virtual reality environment;

transmitting data representing the destination virtual reality environment from a server host to each of the hosts of the user group; and

10 establishing a network connection between the server host and the hosts of the user group within the destination virtual reality environment.

44. The method of Claim 43, which includes the steps of causing each of the users of the user group to access a teleporter via an entry point and a
15 corresponding entry point clone each associated with the departure virtual reality environment; and establishing the continuous network communication between the hosts of the user group each located within the teleporter.

45. A host computer for accessing a networked virtual reality environment, said host computer comprising:

a data storage device which is adapted to store data representing the virtual reality environment and program code for accessing and displaying the virtual reality environment, said program code including means for storing data representing the virtual reality environment, means for executing a plurality of commands to activate the virtual reality environment, means for running the virtual reality environment once activated, and means for enabling the host to establish network communications with at least one other host within the virtual reality environment;

a display device;

a user input device; and

a processor connected to said data storage device, display device and user input device.

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46. The host computer of Claim 45, wherein the data representing the virtual reality environment includes static virtual reality data and dynamic virtual reality data.

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47. The host computer of Claim 46, wherein the program code includes means for enabling the host computer to establish network communications with a data server to receive the static virtual reality data.

48. The host computer of Claim 45, wherein the host computer establishes network communication with the at least one other host via a session server associated with the host computer.

5 49. A computer program product on a media that is stored on a host computer for accessing a networked virtual reality environment, said computer program product comprising:

computer readable code means for storing data representing the virtual reality environment;

10 computer readable code means for executing a plurality of commands to activate the virtual reality environment;

computer readable code means for running the virtual reality environment once activated; and

15 computer readable code means for enabling the host to establish a network communication with at least one other host for accessing the virtual reality environment.

50. The computer program product of Claim 49, wherein the data representing the virtual reality environment includes static virtual reality data,
20 dynamic virtual reality data and combinations thereof.

51. The computer program product of Claim 50, which includes computer readable code means for enabling the host computer to establish network communication with a data server to receive the static virtual reality data.

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52. The computer program product of Claim 49, wherein the host computer establishes network communication with the other hosts via a session server associated with the host computer.

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53. A data server for facilitating network communication between a plurality of hosts within a virtual reality environment, said data server comprising:

means for storing data representing the virtual reality environment; and

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means for transmitting the data representing the virtual reality environment to a host computer which receives the virtual reality data to establish a networked communication session with a plurality of other hosts within the virtual reality environment.

54. The data server of Claim 53, wherein data representing the virtual reality environment is static virtual reality data.

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55. The data server of Claim 53, wherein the host computer receives the data representing the virtual reality environment in a single transmission from the data server.

56. A session server for facilitating network communication between a plurality of hosts within a virtual reality environment, said session server comprising:

means for transmitting dynamic data representing the virtual reality
5 environment between the hosts; and

means for storing and transmitting informational data to locate the hosts.

57. The session server of Claim 56, which includes means for transmitting dynamic data by performing multi-cast messaging between the
10 hosts.

58. The session server of Claim 56, which includes means for transmitting dynamic data by performing uni-cast messaging.

15 59. The session server of Claim 56, which includes means for registering the hosts.

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60. A networked computer system having a plurality of hosts each capable of communicating within a virtual reality environment, said networked computer system comprising:

5 a server host including means for activating one or more virtual reality environments; and

a client host capable of accessing one or more of the virtual reality environments associated with the server host, the client host including means for receiving dynamic data representing the virtual reality environment from the server host via a session server associated with the client host and means for
10 receiving static data representing the virtual reality environment from a data server that stores the static data.

61. A computer program product for enabling a plurality of host computers to access a virtual reality environment, said computer program
15 product comprising:

a computer readable storage medium having computer readable program code means embodied in said medium, said computer readable program code means including computer readable code means for storing data representing the virtual reality environment, computer readable code means for executing a
20 plurality of commands to activate the virtual reality environment, computer readable code means for running the virtual reality environment once activated, and computer readable code means for enabling a host to establish a network communication with at least one other host.